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November 16, 2011

New Jersey Department of Environmental Protection
Division of Site Remediation
Bureau of Case Management
401 East State Street, P.O Box 028
Trenton, New Jersey 08625-0028
ATTN: Matthew Turner

Re: NJDEP Correspondence (Dated October 28, 2008), Draft Site Investigation Report, Fort Monmouth, NJ

Subject: Parcel 15 – Response to Comments

Dear Mr. Turner:

The U.S. Army, Office of the Assistant Chief of Staff for Installation Management (OACSIM), has reviewed the subject comments as submitted by the NJDEP on October 28, 2008. Referenced below is a line by line response to each comment.

Background:

A review of documented UST removal locations versus the location of former buildings within Parcel 15 was conducted. Based on this review, it was determined that no UST removals have been documented at the locations of numerous former barracks within Parcel 15. In order to determine the absence/presence of formerly utilized USTs and the potential release from the USTs to the environment, geophysical surveys, soil sampling, and groundwater sampling were conducted north, northeast, and southwest of Bldg. 2700.

Geophysical Survey Investigation:

An EM survey was conducted throughout the area of Parcel 15 where former barracks were identified to determine if USTs are present. Follow-up GPR surveys were conducted where anomalies were identified during the EM surveys.

Background: Continued

Geoprobe® Investigation:

Geoprobe® soil and groundwater samples were collected in October 2007 at Parcel 15 in order to investigate potential releases from historic USTs associated with former barrack areas around Bldg 2700. A total of 53 surface soil samples and 59 subsurface soil samples (including six duplicate samples) were collected from 53 distinct Geoprobe® borings. Soil borings located north of Bldg 2700 (e.g. zone A) were conducted on 50-ft centers due to the dense spacing of previous barracks in this area. Boring locations southwest (e.g. zone F-K) and northeast (e.g. zone B-E) of Bldg 2700 were conducted on 100-ft centers. Surface soil samples for TPHC analysis were collected from the 0- to 6-inch interval bgs. For borings located in paved areas, TPHC surface soil samples were collected from the 0- to 6-inch interval directly below the pavement sub-base. Surface soil samples collected for VO analysis were collected from the 18- to 24-inch bgs interval. Subsurface soil samples were collected from the 6-inch interval directly above the water table from each boring. Field screening of the soil boring cores was conducted using a PID/FID meter. Seven groundwater samples (including one duplicate sample) were collected from six distinct temporary wells that were installed. Temporary wells were installed along the downgradient boundary of the parcel (along Shrewsbury Creek) and were constructed of PVC and 5 ft of factory-slotted screen. Groundwater samples were collected for the dual purpose of investigating any potential release from possible former heating oil USTs associated with former barracks and other potential discharges from historic activities at Bldg 2700. The SI work plan specified that previously installed monitoring well UST-2337-65 was to be used as a reference for comparison with Geoprobe® results. However, the monitoring well could not be located and therefore was not sampled.

Geophysical Survey Results:

The EM survey identified a total of 41 target EM anomalies. The survey areas are presented on **Figure 3.3-1**. This area was scanned with the EM-61 because the parking lots which comprise most of the area could only be cordoned off in small portions and the EM-61 towing rig is better suited for the necessary tight turns. Several areas in this parcel were scanned with only the TW-6 due to interference of the GPS signal by nearby buildings and trees and the presence of parked cars during the EM survey.

This parcel of FTMM has been previously developed and the land surface reworked multiple times throughout its history. The findings of the geophysical survey (the density and small size of anomalies) are consistent with the site history. No metallic anomalies interpreted to be a UST were delineated.

The results of the GPR/TW-6 follow-up scanning are listed in **Table 3.3-3** and full results of the geophysical surveys are included in **Appendix A**. In summary, GPR scanning of the 41 targets revealed:

Background: Continued

• Nine targets that were associated with surface metal/debris (previously unaccounted for).

• Thirty-one targets with moderate-amplitude near-surface point target reflections indicative of areas containing small pieces of buried debris; not indicative of a UST.

• One target with the moderate-amplitude parabolic scattered reflections indicative of small pieces of scattered debris; not indicative of a UST.

Please refer to the Site Investigation Report, Fort Monmouth, (Dated July 21, 2008) for specific tables, figures, and appendices.

Geoprobe® Investigation Results:

Surface and subsurface soil samples were analyzed for TPHC. Corresponding surface and subsurface soil samples were collected for contingent VO+10 analysis. Groundwater samples were analyzed for VO+10, B/N+15, and TAL metals.

Soil:

Soil TPHC analytical results are presented in **Table 3.3-7**. TPHC was detected in seven of the 53 surface soil samples and in two of the 59 subsurface soil samples. None of the TPHC results exceeded the NJDEP NRDCSCC and RDCSCC of 10,000 mg/kg, and no detections were greater than 1,000 mg/kg; therefore, no VO analysis for soil was required.

Groundwater:

One VO, toluene, was detected at a concentration of 0.65 µg/L, which is below the GWQC of 600 µg/L.

One B/N, bis(2-ethylhexyl)phthalate, was detected in Parcel 15 groundwater samples. As shown in **Table 3.3-8**, bis(2-ethylhexyl)phthalate was detected in 15GW-3 at a concentration of 3.74 µg/L and in 15GW-4 at a concentration of 4.04 µg/L, which exceed the NJDEP GWQC of 3 µg/L. Bis(2-ethylhexyl)phthalate was not detected in the duplicate sample collected at 15GW-3 (15GW-3DUP). A commonly used plasticizer, bis(2-ethylhexyl)phthalate, is present in a wide variety of plastic products, is commonly detected in field and laboratory QC samples, and was detected in the field blank associated with Parcel 15 groundwater sampling. The contamination in the field blank was most likely the result of the polyethylene sampling tube that is commonly used for sampling wells. Therefore, it is not considered a COC in groundwater at Parcel 15.

A total of 19 metals were detected in Parcel 15 groundwater samples. Of the 19 metals detected, six (aluminum, arsenic, iron, lead, manganese, and sodium) were detected above the respective GWQC. All sample results are presented in **Table 3.3-8**. As discussed in the 1995 Site Investigation Report (47), several natural and anthropogenic factors contribute to the wide range in concentrations of metals in soils, which further impact the concentration of metals in

Background: Continued

groundwater. Soils derived from glauconitic sands contain abundant aluminum, calcium, potassium, iron, magnesium, manganese, and sodium (among others), which are likely to be present at elevated concentrations in the groundwater, particularly when sediments are entrained

in the collected groundwater samples. Aluminum, iron, manganese, and sodium were detected in Parcel 15 groundwater samples, collected from temporary wells, at concentrations above the NJDEP GWQC. Aluminum, iron, manganese, and sodium are regarded as naturally occurring metals within the native soil types at FTMM and are not considered COCs. The remaining metals detected in samples collected from temporary wells were compared to the respective GWQC and MBCs to determine COCs requiring further evaluation. The COCs are presented on **Figure 3.3-1**.

Arsenic was detected at concentrations exceeding the NJDEP GWQC of 3 µg/L in two samples, 15GW-1 (4.41 µg/L) and 15GW-4 (7.47 µg/L). However, these concentrations did not exceed the CWBC of 25.1 µg/L. In addition, arsenic is associated with the native glauconitic sands (48). The elevated arsenic concentrations in the native soil in turn influence the arsenic levels in groundwater. Lead was detected at a concentration exceeding the NJDEP GWQC of 5 µg/L in one sample (15GW-6) at a concentration of 6.41 µg/L. However, the lead concentration did not exceed the CWBC of 7.3 µg/L. Thus, arsenic and lead are not considered COCs in Parcel 15 groundwater.

Please refer to the Site Investigation Report, Fort Monmouth, (Dated July 21, 2008) for specific tables, figures, and appendices.

Summary and Conclusions

No suspected USTs were identified as a result of the geophysical surveys, and no constituents were identified above applicable NJDEP criteria in surface or subsurface soil. Four naturally occurring metal constituents common to local soils, aluminum, iron, manganese, and sodium, were detected at concentrations greater than the NJDEP GWQC. As discussed in detail in **Section 2.3.1**, high concentrations of aluminum, iron, manganese, and sodium are expected to occur due to the chemical nature of glauconitic quartzose sands deposited throughout FTMM. Since these native metals are attributed to the aquifer material and are not site-related, these metals are not considered COCs.

Two metal constituents, arsenic and lead, were detected at concentrations slightly above the NJDEP GWQC, but were detected at sporadic locations and at low concentrations from temporary well points. In addition, arsenic and lead were detected at concentrations below the CWBC. Furthermore, arsenic and lead are not constituents of # 2 fuel oil. NFA is recommended for soil and groundwater within Parcel 15.

Response to NJDEP Comments:

1. The Report states that no suspected USTs were located by the geophysical surveys, however it further indicates that no UST removals have been documented at the locations of numerous former barracks within Parcel 15. The Report should provide a possible explanation(s) for why no USTs were found.

Response: The Army can only theorize as to the disposition of the USTs associated with the former barracks located within Parcel 15. One possible scenario is that the Army removed the USTs when the barracks were demolished in order to make room for the construction of the Myer Center in 1954. Another possible scenario is that the Army may have used aboveground storage tanks to store # 2 fuel oil at the former barracks buildings. With these possible scenarios in mind, the Army developed an investigative strategy that included a comprehensive soil and groundwater investigation which was not dependent upon the results of the geophysical survey. Based upon the results of the geophysical survey, the Army can report that no abandoned USTs were detected within any of the three zones (i.e. A, B-E, and F-K) surveyed. In addition, it was also concluded, based on the results of the soil and groundwater investigation, that a "No Further Action" determination be requested from the NJDEP.

2. It is unclear why an NFA for ground water is being recommended when a ground water remediation is currently being implemented for the CW-1 area. If the Army wants to identify individual AOCs within Parcel 15 for an NFA designation, they should make that case for those individual AOCs.

Response: The NFA for groundwater does not apply to Sites CW-1 and CW-2 which are being managed under the Army's Installation Restoration Program. Numerous reports have been submitted to the NJDEP, under separate cover, for these two sites. The Army seeks an NFA for groundwater within Parcel 15 to exclude Sites CW-1 and CW-2.

3. The recommendation of NFA for soil is acceptable based upon the sampling results and the results of the geophysical survey.

Response: Agreed.

4. The report states that well UST-2337-65 could not be located. If the well has been surveyed, an attempt shall be made to locate the well using the State Plane Coordinates.

Response: The Army will do everything in its power to locate monitoring well "UST-2337-65" and properly close said well in accordance with NJDEP regulations.

Should you have any questions or require additional information, please contact Ms. Wanda Green at (732) 380-7064 or by email: Wanda.S.Green2.civ@mail.mil.

Sincerely,

John E. Occhipinti
BRAC Transition Coordinator

cf: Wanda Green, BRAC Environmental Coordinator